



Clean Air Facts

VOC Emissions Sources and Air Pollution Construction Permits

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This fact sheet offers specific guidance to sources of volatile organic compounds (VOCs) that may require a construction permit.

What is a VOC Emissions Source?

A VOC (or volatile organic compound) emissions source is any process or production unit that uses materials that contain VOCs or creates emissions of VOCs. These include paints, inks, lacquers, adhesives, other coatings, clean up solvents, or other solvents.

This fact sheet focuses on VOC emissions sources with painting or coating operations. Some examples are wood coating, metal part painting, plastic part coating, fabric coating, cabinet/countertop lamination, furniture coating, printing presses, screen printing units, and motor vehicle repair shops.

Why Should I Be Concerned about VOC Emissions Sources?

Emissions of VOCs are known to contribute to increased ozone ("bad" ozone, a.k.a. smog) levels. The Wisconsin Department of Natural Resources (DNR) has regulations that apply to specific industries that emit VOCs through production or manufacturing processes. Industry-specific VOC regulations may also be referred to as RACT rules (Reasonably Available Control Technology). **Some** VOC RACT rules cover processes or operations like:

- ◆ motor vehicle refinishing
- ◆ industrial adhesive users
- ◆ solvent cleaning activities
- ◆ wood furniture manufacturing
- ◆ lithographic printing

Other VOC rules affecting specific types of businesses or activities can be found in chapters NR 419-425 of the Wisconsin Administrative Code (Wis. Adm. Code). The DNR also has a general rule regulating VOC emissions found in NR 424. For more information, check out the Small Business Clean Air Assistance Program (SBCAAP) fact sheets on **VOC RACT Rules for Specific Industries** (at http://dnr.wi.gov/air/pdf/sb-AirVOC_RACT.pdf) and the **General Organic Compound Rule in Section NR 424.03** (<http://dnr.wi.gov/air/pdf/sb-VOC-NR424.pdf>).

Another concern is that many VOCs are also considered hazardous air pollutants (HAPs), which

are regulated under separate requirements by both the DNR and the U.S. Environmental Protection Agency (EPA).

VOC Emissions Sources and Construction Permits

Are you considering adding a new printing unit or spray booth? Do you have plans to change your coating application equipment? Do you need to increase the product throughput capacity of your solvent based parts wash line? Will you be moving your operations to a new location? If so, you may be required to apply for an air pollution construction permit with DNR.

If your production has increased over time to the point where you no longer meet the permit exemptions listed below, this also would trigger the need for a construction permit.

Construction Permit Exemptions

Some VOC emissions sources may be exempt from the requirement to apply for a construction permit. For each type of process that you wish to install, replace, or change in some fashion, you need to check out which exemption might apply to that action.

The construction permit exemptions are found in chapter NR 406, Wis. Adm. Code. There are three options that may allow you to be exempt from a construction permit:

- (1) specific exemptions,
- (2) actual emissions-based exemptions, or
- (3) general exemptions.

Specific Exemptions

If the unit(s) you want to install or modify are either a painting/coating or printing line and will emit less than **1,666 pounds of VOC per month**, your project may be exempt. This can be either the capacity of the line or your expected capacity into the near future. If you have the potential to go over that level within a year or so, you should consider whether you meet one of the other exemptions, or it may be best to just apply for a construction permit.

Actual Emissions-based Exemptions

If your new process line or your whole operation has emissions less than 10 tons per year for each



pollutant, you may be able to use one of the actual emissions-based exemptions.

To qualify for this exemption, you must meet ALL of these levels.

- “Criteria pollutants” — do not exceed 10 tons per calendar year (TPY) for each [Volatile Organic Compounds (VOCs), Particulate Matter (PM), Sulfur Dioxide (SO₂), Carbon Monoxide (CO) or Nitrogen Oxides (NO_x)]
- Lead — do not exceed 0.5 TPY
- State HAPs — actual emissions less than thresholds in ch. NR 445, Wis. Admin. Code
- Not affected by any New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants, unless subject solely to recordkeeping or notification requirements
- If using a control device to achieve these exemption levels, you must monitor the device with appropriate methods

For more information on whether you can use one of these exemptions, review the following fact sheets:

- For a **project** that may meet the actual emissions exemption, review the construction permit exemptions fact sheet, at <http://dnr.wi.gov/air/pdf/ConstructionPermitExemptionfactsheet.pdf>.
- For a **facility** where the whole operation may meet the actual emissions exemption, review the operation permit exemptions fact sheet, at <http://dnr.wi.gov/air/pdf/OperationPermitExemptionfactsheet.pdf>.

If you meet one of these exemptions, follow the procedure described on DNR’s air permit options web site, <http://dnr.wi.gov/topic/AirPermits/options.html#tabx6>.

If you cannot use one of the actual emissions-based exemptions, you may still meet the general exemption.

General Exemption

If you want to increase the capacity of a unit like a solvent based parts wash line, the increase in VOCs must be less than a **maximum theoretical emission rate of 5.7 pounds per hour**.

You might notice that the exemptions mentioned above used two different types of terms for emissions: “will emit” and “maximum theoretical emissions.” “Will emit” means the actual emissions the unit will generate under normal operations. “Maximum theoretical emissions” means the emissions from your operations at their absolute highest production level physically allowed by the designed capacity. It does not consider any control device that might be used to reduce emissions. Maximum theoretical emissions are not just the maximum level at which you expect to operate your process line; they could be much higher. The process design capacity may be the maximum

conveyor line speed if you paint parts attached to an overhead conveyor line, or maximum press speed, etc. These are important distinctions to consider when deciding if you are exempt.

How Do I Calculate VOC Emissions?

To find out if you are exempt, you need to do some calculations. An example coating operation will be used here. The exemption for a coating operation is 1,666 pounds VOC per month of actual emissions. You need a little information for these calculations:

❶ If the exemption that applies to your new or changed process is based on what it “will emit,” project from your expected operations what you will need to run the process at and, from there, how much VOC emissions it will generate. In other words, if you expect to have enough customers to produce X number of coated parts each month, how much coating will you use to meet that production level?

If the exemption that applies to your process is based on “maximum theoretical emissions,” your equipment supplier or manufacturer may know the design capacity to help you determine the emissions.

❷ Get copies of the Material Safety Data Sheets (MSDS) for each coating you will use from your coating supplier. Look under the Physical Characteristics section of the MSDS, and be sure it shows either:

- ✓ VOC content in pounds per gallon (lb/gal), **or**
- ✓ VOC content in percent (%) by weight (wt), and density of coating in lb/gal.

The MSDS may list VOC content in pounds per gallon **excluding water**; do not use that value for these calculations. This value is often needed for showing compliance with VOC RACT rules mentioned previously.

❸ If you do not have the necessary information to calculate VOC content in lb/gal, you should be able to get that information from your coating supplier. You may have sufficient information to calculate VOC content in lb/gal from the VOC content in percent by weight (% by wt) and the coating density, as follows:

Equation:

$$\begin{aligned} &\text{Coating density (pounds per gallon, lb/gal)} \\ &\times \text{VOC content (percent by weight)} / 100 \\ &= \text{VOC content (lb VOC/gal)} \end{aligned}$$

For Example:

$$\begin{aligned} &\text{Coating density} = 14 \text{ lb/gal} \\ &\text{VOC Content} = 40 \text{ percent by weight} \end{aligned}$$

Calculate:

$$14 \text{ lb/gal} \times 40 / 100 = \mathbf{5.6 \text{ lb VOC/gal}}$$

④ Once you calculate the VOC content in lb/gal, you can calculate VOC emissions. Multiply the VOC content by the amount of coating used that month, in gallons, to get pounds VOC per month for that coating. If you used 100 gallons of a coating with 5.6 lb VOC/gal for one month:

$$100 \text{ gal/mo} \times 5.6 \text{ lb VOC/gal} = \mathbf{560 \text{ lb VOC/mo}}$$

⑤ Do this calculation for each coating you used in the month. Also, you should include VOCs from clean up solvents directly related to the process, like gun or applicator cleaning for coating operations. Then add up the VOC emissions from all the coatings and solvents used to calculate total VOC emissions in pounds per month. If this total is less than 1,666 pounds per month, you are exempt from a construction permit.

What Do I Need to Do If I'm Exempt?

The requirements depend on the exemption that applies to you. For example, if you meet one of the specific exemptions on VOC emissions, you need to keep records for each month showing that your emissions stay below the exemption level of 1,666 pounds VOC. If your production grows closer to that level, you will want to start looking at the permit application process, since a construction permit must be issued **before** your monthly emissions go over the 1,666 pound per month level. You can use the **Air Permit Compliance Calendar**, available from SBCAAP's compliance web site at <http://dnr.wi.gov/air/sb/Compliance.html>, to help you keep records of your VOC emissions on a monthly basis.

How Do I Apply for a Construction Permit?

If you are not exempt from the construction permit requirements, you then need to review the permit options. There are currently three types of permits available to sources undergoing construction or expansion:

- **Registration Operation Permits** — For those who can limit emissions to less than 25 TPY of each criteria pollutant (listed in the actual emissions exemption), 2.5 TPY of one federal HAP, and 6.25 of all federal HAPs; this permit allows you to construct so long as you stay within the eligibility thresholds.
- **General Operation Permits** — These permits are only available for certain industries but also allow construction if you meet the permit criteria.
- **Source-specific construction permits** — These permits are written specifically for a facility's operations.

You may contact the DNR or SBCAAP to get the permit application materials and instructions, or you can visit <http://dnr.wi.gov/topic/AirPermits/options.html>. If you have questions about how to complete the forms, contact DNR or SBCAAP to arrange a pre-application meeting. Once you have completed the application, two copies should be submitted to the nearest DNR office with Air Program staff. There is a link to the list of DNR Air Management Program

contacts at the end of this fact sheet.

What Will the Application Cost?

For Registration and General permits, there is no application fee. However, permit holders pay an annual fee based on which permit is issued:

- ✓ Registration Operation Permits: \$300
- ✓ General Construction Permits:
 - ❖ \$300 if emissions capped less than 80 TPY
 - ❖ \$4,100 if at least 80 TPY but less than 100 TPY

If you are applying for a source-specific construction permit, you must enclose a check for \$1,350.00, payable to the Department of Natural Resources, when you submit the application. Other costs associated with the construction permit review process will vary depending on which requirements apply to your proposed project. Some additional costs may include:

- ❖ \$2,300 minor source review;
- ❖ \$12,000 major source review;
- ❖ \$4,400 or \$8,000 for minor or major modifications (respectively);
- ❖ \$1,350 for a stack test of single pollutant, and \$950 for each additional pollutant up to 3; maximum of \$4,200 (may not be required in all permits);
- ❖ \$700 air quality analysis for minor source;
- ❖ \$2,650 expedited review of a minor source (this speeds up the review of your application).



The application fee will be returned by DNR if the project does not need a construction permit. Otherwise, it will be applied to your final fee. If a permit is not required, you may then begin construction immediately. If a permit is required, you must wait until a permit is issued by DNR to begin construction. There is always a possibility that DNR will deny your permit, if you cannot meet all the requirements that apply, so you could be in trouble if you've started construction before receiving a permit.

What are the Permit Review Steps?

For Registration and General Permits, the application process is very simple.

You can apply for Registration Permits online by answering less than 15 questions at <http://dnr.wi.gov/peace/amregsubmitui/Submit/Welcome.aspx>. From the first web page, click "Continue," and be sure to review the application worksheet prior to starting the online application process. A few of the questions require you to do some calculations or collect information, and the program will time-out if you stop in the middle. Once you complete the application, print out the final summary page, sign the form, and mail to DNR. This process may change once DNR can accept electronic signatures.

General Permits also have simple application forms, but they are not yet available online. For more information, go to: <http://dnr.wi.gov/topic/AirPermits/options.html#tabx5>.

Applying for a source-specific construction permit is a more extensive process. In the near future, the electronic application process will also be available for these types of permits. This will save time for everyone.

After you submit a complete application, DNR staff goes through the review process, which can take from 20 to 60 days or more depending on the size of the project and the current queue of applications. When the review is completed, the DNR then prepares a preliminary decision to approve or deny the application and publishes a notice in your local paper. The notice gives the public 30 days from the date the paper was published to comment on the proposed project. **This is also your chance to review the permit and provide DNR with comments on elements in the permit.**

If the public shows significant interest in the proposed project or specifically requests one, the DNR will schedule a public hearing within 60 days after the end of the public comment period. Then DNR will issue or deny the



construction permit within 60 days after the close of the public hearing. Note that this means a public hearing could add up to 120 days to the application process. If there is minimal interest during public comment, DNR can issue the permit soon after the 30 days are up.

What Should I Do When I Get My Final Permit?

When you get your permit, you can begin construction.

Read the permit CAREFULLY for any specific testing or monitoring requirements, or other deadlines. Mark down deadlines and periodic requirements on a calendar as a reminder. You can use the **Air Permit Compliance Calendar**, available from SBCAAP at <http://dnr.wi.gov/air/sb/Compliance.html>, to help manage your reminders.

It is very important to keep track of the deadlines in a construction permit because of its limited life of 18 months. If you cannot meet certain deadlines, talk with your DNR compliance inspectors about extensions. Also, if you cannot complete construction and/or required emissions testing in the construction permit, you should request your one 18-month extension well in advance of the expiration date of the permit.



Contacts for More Information or Assistance

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact us at 855-889-3021 (toll free) or DNRCleanAir@wisconsin.gov for assistance.



For more information on the asbestos requirements, you can contact DNR's Air Management Program; staff contacts for specific topics are listed online at <http://dnr.wi.gov/topic/AirQuality/contacts.html>.

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